

# Администрирование сетевых подсистем

Лабораторная работа №13

---

Авдадаев Джамал Геланиевич

06 декабря 2025

Российский университет дружбы народов, Москва, Россия

## Цель работы

---

## Цель лабораторной работы

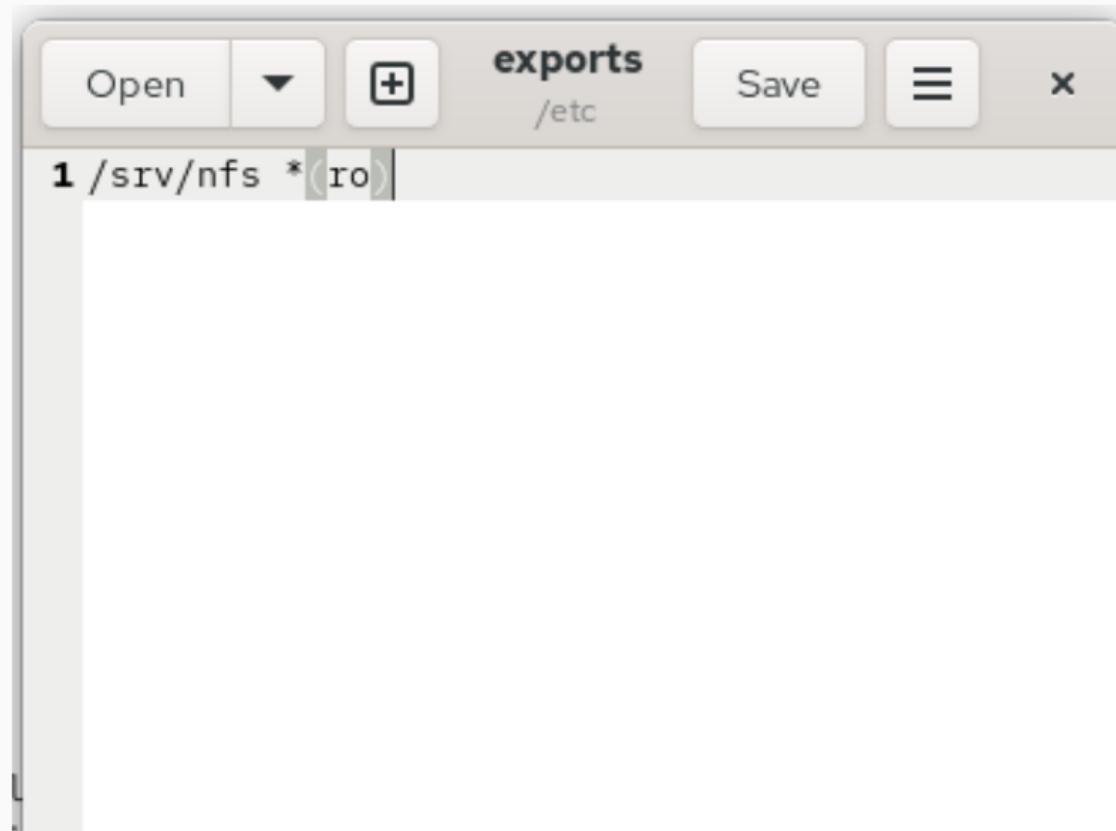
---

Получение практических навыков настройки сервера и клиента NFS, публикации каталогов, назначения прав доступа и автоматизации конфигурации средствами provisioning.

## Ход выполнения

---

## Установка ПО и подготовка каталога



# Настройка SELinux и firewall

```
Installed:
  gssproxy-0.9.2-10.el10.x86_64
  libverto-libev-0.3.2-10.el10.x86_64
  sssd-nfs-idmap-2.11.1-2.el10_1.1.x86_64

libev-4.33-14.el10.x86_64
nfs-utils-1:2.8.3-0.el10.x86_64
libnfsidmap-1:2.8.3-0.el10.x86_64
rpcbind-1.2.7-3.el10.x86_64

Complete!
[root@server.dgavdadaev.net ~]# mkdir -p /srv/nfs
[root@server.dgavdadaev.net ~]# gedit /etc(exports
[root@server.dgavdadaev.net ~]# semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"
[root@server.dgavdadaev.net ~]# restorecon -vR /srv/nfs
Relabeled /srv/nfs from unconfined_u:object_r:var_t:s0 to unconfined_u:object_r:nfs_t:s0
[root@server.dgavdadaev.net ~]# systemctl start nfs-server.service
[root@server.dgavdadaev.net ~]# systemctl enable nfs-server.service
Created symlink '/etc/systemd/system/multi-user.target.wants/nfs-server.service' → '/usr/lib/systemd/system/nfs-server.service'.
[root@server.dgavdadaev.net ~]# firewall-cmd --add-service=nfs
success
[root@server.dgavdadaev.net ~]# firewall-cmd --add-service=nfs --permanent
success
[root@server.dgavdadaev.net ~]# firewall-cmd --reload
success
[root@server.dgavdadaev.net ~]# █
```

Рис. 2: Настройка firewalld

## Проверка экспортов с клиента

```
sssd-proxy-2.11.1-2.el10_1.1.x86_64
Installed:
  gssproxy-0.9.2-10.el10.x86_64          libev-4.33-14.el10.x86_64
  libnfsidmap-1:2.8.3-0.el10.x86_64      libverto-libev-0.3.2-10.el10.x86_64
  nfs-utils-1:2.8.3-0.el10.x86_64        rpcbind-1.2.7-3.el10.x86_64
  sssd-nfs-idmap-2.11.1-2.el10_1.1.x86_64

Complete!
[root@client.dgavdadaev.net ~]# showmount -e server.dgavdadaev.net
clnt_create: RPC: Unable to receive
[root@client.dgavdadaev.net ~]# showmount -e server.dgavdadaev.net
Export list for server.dgavdadaev.net:
/srv/nfs *
[root@client.dgavdadaev.net ~]#
[root@client.dgavdadaev.net ~]# showmount -e server.dgavdadaev.net
Export list for server.dgavdadaev.net:
/srv/nfs *
[root@client.dgavdadaev.net ~]# █
```

Рис. 3: Проверка showmount

## Подключение дерева NFS

```
[root@client.dgavdadaev.net ~]#  
[root@client.dgavdadaev.net ~]# mkdir -p /mnt/nfs  
[root@client.dgavdadaev.net ~]# mount server.dgavdadaev.net:/srv/nfs /mnt/nfs  
[root@client.dgavdadaev.net ~]# mount | grep nfs  
server.dgavdadaev.net:/srv/nfs on /mnt/nfs type nfs4 (rw,relatime,vers=4.2,rsize=262144,wsize=262144,na  
mlen=255,hard,proto=tcp,timeo=600,retrans=2,sec=sys,clientaddr=192.168.1.30,local_lock=none,addr=192.16  
8.1.1)  
[root@client.dgavdadaev.net ~]#
```

Рис. 4: Монтирование NFS

# Автоматическое монтирование

```
[root@client.dgavdadaev.net ~]#
[root@client.dgavdadaev.net ~]# systemctl status remote-fs.target
● remote-fs.target - Remote File Systems
    Loaded: loaded (/usr/lib/systemd/system/remote-fs.target; enabled; preset: enabled)
    Active: active since Sat 2025-12-06 08:13:55 UTC; 14min ago
      Invocation: c34459e4f2ef41408c8afad25c3b7648
        Docs: man:systemd.special(7)

Dec 06 08:13:55 client.dgavdadaev.net systemd[1]: Reached target remote-fs.target - Remote File System
[root@client.dgavdadaev.net ~]#
[root@client.dgavdadaev.net ~]# mount -
[root@client.dgavdadaev.net ~]# mount | grep nfs
server.dgavdadaev.net:/srv/nfs on /mnt/nfs type nfs4 (rw,relatime,vers=4.2,rsize=262144,wsize=262144,namelen=255,hard,proto=tcp,timeo=600,retrans=2,sec=sys,clientaddr=192.168.1.30,local_lock=none,addr=192.168.1.1)
[root@client.dgavdadaev.net ~]#
```

Рис. 5: remote-fs.target

## Публикация веб-каталога

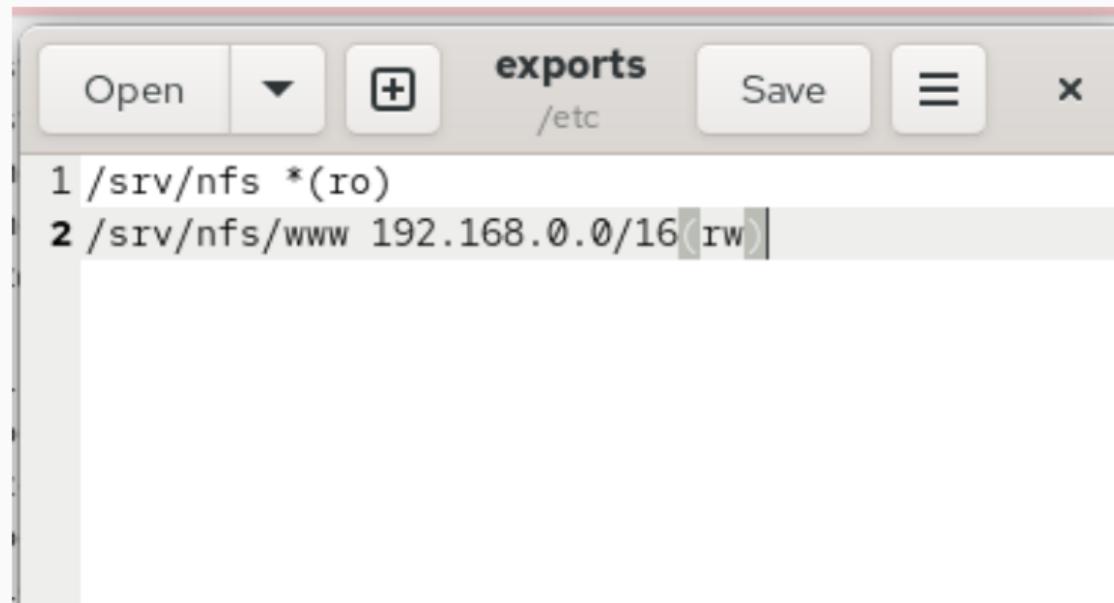
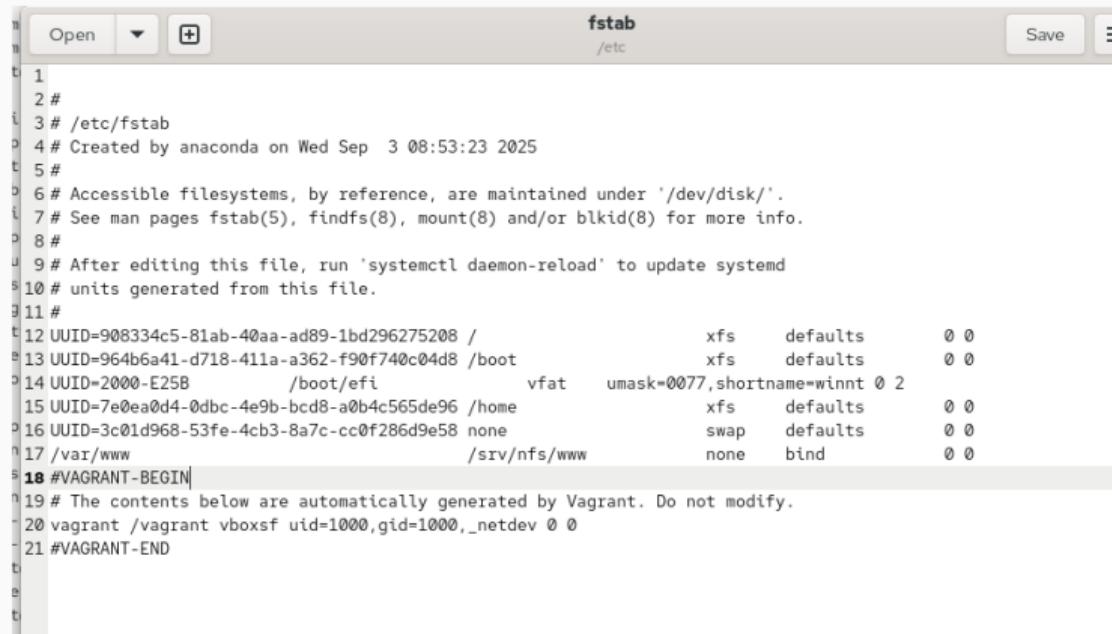


Рис. 6: Экспорт www

# Автоматизация bind-монтирования



The screenshot shows a file editor window with the title bar "fstab" and the path "/etc". The file content is a list of file system entries. The entry for the "/var/www" directory is highlighted with a gray background. The line starts with "18 #VAGRANT-BEGIN" followed by the mount point and its details.

```
1
2 #
3 # /etc/fstab
4 # Created by anaconda on Wed Sep  3 08:53:23 2025
5 #
6 # Accessible filesystems, by reference, are maintained under '/dev/disk/'.
7 # See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
8 #
9 # After editing this file, run 'systemctl daemon-reload' to update systemd
10 # units generated from this file.
11 #
12 UUID=908334c5-81ab-40aa-ad89-1bd296275208 /          xfs    defaults    0 0
13 UUID=964b6a41-d718-411a-a362-f90f740c04d8 /boot      xfs    defaults    0 0
14 UUID=2000-E25B        /boot/efi      vfat    umask=0077,shortname=winnt 0 2
15 UUID=7e0ea0d4-0dbc-4e9b-bcd8-a0b4c565de96 /home      xfs    defaults    0 0
16 UUID=3c01d968-53fe-4cb3-8a7c-cc0f286d9e58 none      swap    defaults    0 0
17 /var/www            /srv/nfs/www  none    bind      0 0
18 #VAGRANT-BEGIN
19 # The contents below are automatically generated by Vagrant. Do not modify.
20 vagrant /vagrant vboxsf uid=1000,gid=1000,_netdev 0 0
21 #VAGRANT-END
```

Рис. 7: fstab www

## Автоматизация bind-монтирования

```
[root@server.dgavdadaev.net ~]#  
[root@server.dgavdadaev.net ~]# mkdir -p /srv/nfs/www  
[root@server.dgavdadaev.net ~]# mount -o bind /var/www/ /srv/nfs/www/  
[root@server.dgavdadaev.net ~]# ls /srv/nfs/  
www  
[root@server.dgavdadaev.net ~]# gedit /etc/exports  
[root@server.dgavdadaev.net ~]# exportfs -r  
[root@server.dgavdadaev.net ~]# gedit /etc/fstab  
[root@server.dgavdadaev.net ~]# exportfs -r  
[root@server.dgavdadaev.net ~]# mount -a  
[root@server.dgavdadaev.net ~]# █
```

Рис. 8: Проверка www

## Настройка каталога пользователя

```
[dgavdadaev@server.dgavdadaev.net ~]$  
[dgavdadaev@server.dgavdadaev.net ~]$ mkdir -p -m 700 ~/common  
[dgavdadaev@server.dgavdadaev.net ~]$ cd  
[dgavdadaev@server.dgavdadaev.net ~]$ cd common/  
[dgavdadaev@server.dgavdadaev.net common]$ touch dgavdadaev@server.txt  
[dgavdadaev@server.dgavdadaev.net common]$ ls  
dgavdadaev@server.txt  
[dgavdadaev@server.dgavdadaev.net common]$ █
```

Рис. 9: Каталог common

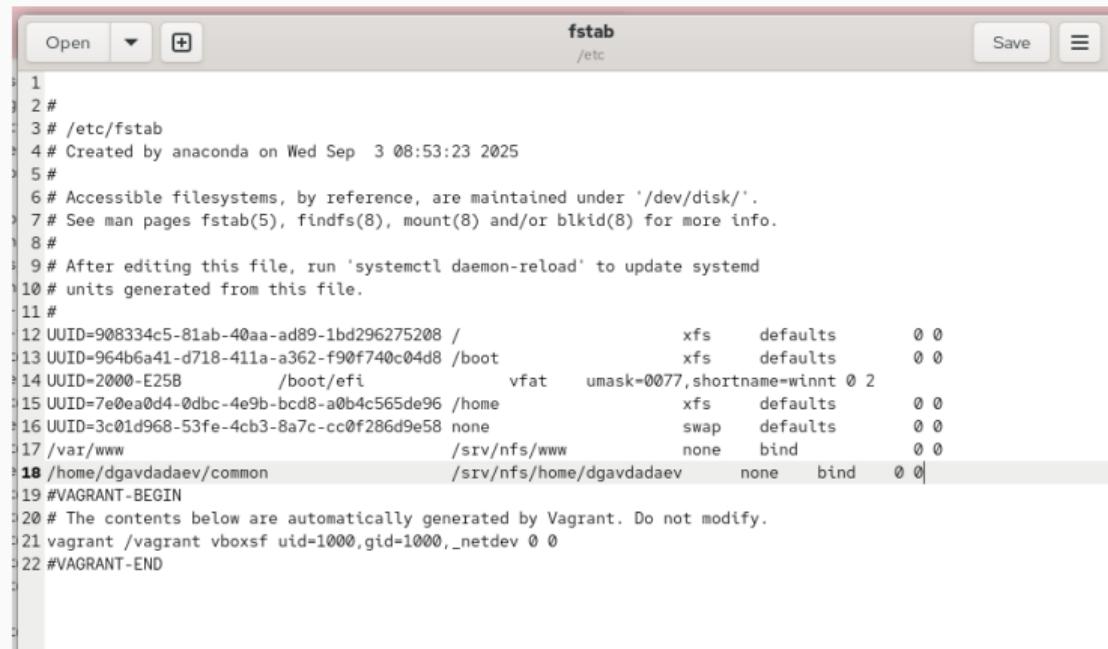
## Экспорт и bind-монтирование



```
Open ▾ + exports /etc
1 /srv/nfs *(ro)
2 /srv/nfs/www 192.168.0.0/16(rw)
3 /srv/nfs/home/dgavdadaev 192.168.0.0/16(rw)
```

Рис. 10: export home

## Экспорт и bind-монтирование



The screenshot shows a file editor window titled "fstab" located at "/etc". The file contains the following content:

```
1
2 #
3 # /etc/fstab
4 # Created by anaconda on Wed Sep  3 08:53:23 2025
5 #
6 # Accessible filesystems, by reference, are maintained under '/dev/disk/'.
7 # See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
8 #
9 # After editing this file, run 'systemctl daemon-reload' to update systemd
10 # units generated from this file.
11 #
12 UUID=908334c5-81ab-40aa-ad89-1bd296275208 /          xfs    defaults      0 0
13 UUID=964b6a41-d718-411a-a362-f90f740c04d8 /boot       xfs    defaults      0 0
14 UUID=2000-E25B          /boot/efi        vfat   umask=0077,shortname=winnt 0 2
15 UUID=7e0ea0d4-0dbc-4e9b-bcd8-a0b4c565de96 /home       xfs    defaults      0 0
16 UUID=3c01d968-53fe-4cb3-8a7c-cc0f286d9e58 none        swap    defaults      0 0
17 /var/www                 /srv/nfs/www      none    bind         0 0
18 /home/dgavdadaev/common /srv/nfs/home/dgavdadaev none    bind         0 0
19 #VAGRANT-BEGIN
20 # The contents below are automatically generated by Vagrant. Do not modify.
21 vagrant /vagrant vboxsf uid=1000,gid=1000,_netdev 0 0
22 #VAGRANT-END
```

Рис. 11: fstab home

## Проверка работы с клиентской стороны

```
[dgavdadaev@client.dgavdadaev.net ~]$  
[dgavdadaev@client.dgavdadaev.net ~]$ cd /mnt/nfs/home/dgavdadaev/  
[dgavdadaev@client.dgavdadaev.net dgavdadaev]$ ls  
dgavdadaev@server.txt  
[dgavdadaev@client.dgavdadaev.net dgavdadaev]$ touch dgavdadaev@client.txt  
[dgavdadaev@client.dgavdadaev.net dgavdadaev]$ ls  
dgavdadaev@client.txt dgavdadaev@server.txt  
[dgavdadaev@client.dgavdadaev.net dgavdadaev]$ ls -l  
total 0  
-rw-r--r--. 1 dgavdadaev dgavdadaev 0 Dec  6 08:38 dgavdadaev@client.txt  
-rw-r--r--. 1 dgavdadaev dgavdadaev 0 Dec  6 08:34 dgavdadaev@server.txt  
[dgavdadaev@client.dgavdadaev.net dgavdadaev]$ sudo -i  
[sudo] password for dgavdadaev:  
[root@client.dgavdadaev.net ~]# cd /mnt/nfs/home/dgavdadaev/  
-bash: cd: /mnt/nfs/home/dgavdadaev/: Permission denied  
[root@client.dgavdadaev.net ~]# █
```

Рис. 12: Работа пользователя

## Проверка работы с клиентской стороны

```
[dgavdadaev@server.dgavdadaev.net ~]$ mkdir -p -m 700 ~/common
[dgavdadaev@server.dgavdadaev.net ~]$ cd
[dgavdadaev@server.dgavdadaev.net ~]$ cd common/
[dgavdadaev@server.dgavdadaev.net common]$ touch dgavdadaev@server.txt
[dgavdadaev@server.dgavdadaev.net common]$ ls
dgavdadaev@server.txt
[dgavdadaev@server.dgavdadaev.net common]$
[dgavdadaev@server.dgavdadaev.net common]$ ls -l
total 0
-rw-r--r--. 1 dgavdadaev dgavdadaev 0 Dec  6 08:38 dgavdadaev@client.txt
-rw-r--r--. 1 dgavdadaev dgavdadaev 0 Dec  6 08:34 dgavdadaev@server.txt
[dgavdadaev@server.dgavdadaev.net common]$ █
```

Рис. 13: Появление файла

## Выводы

---

## Итог лабораторной работы

---

- Настроены экспортимые каталоги NFS
- Реализовано bind-монтирование системных и пользовательских каталогов
- Обеспечены корректные права доступа и безопасность
- Настроено автоматическое монтирование
- Созданы provisioning-скрипты для полной автоматизации настройки сервера и клиента